North Dakota GIS Initiative Report
To Governor John Hoeven

July 1, 2007 – June 30, 2008

Executive Order 2001-06: "The committee shall issue a report to the Governor's office at the end of each fiscal year, detailing progress, and problems encountered with GIS development in the state."

Prepared By: Bob Nutsch
GIS Coordinator
Information Technology Department

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Executive Summary

The North Dakota Geographic Information System (GIS) initiative continued to be successful during the July 1, 2007 – June 30, 2008 reporting period. The GIS Technical Committee (GISTC) actively enhances the GIS Hub by adding new data and maintaining existing data. State agencies and other users of the GIS Hub find value in the GIS Hub as a central repository of data and applications. There is an average of 40+ daily concurrent connections to the GIS Hub database from state agencies. During 2007 there were over 1.4 million hits on the web services and nearly 46,000 data downloads, each representing a 30% increase over 2006.

There are over 190 layers on the GIS Hub consuming over 3 terabytes of storage or the equivalent of 647 DVDs. New and updated data that have been loaded onto the GIS Hub over the past year include: snowmobile trails, water districts, roads, state and federal lands, and communication information. The GIS Hub database also contains agency-specific data that is maintained and used internally by those agencies.

The GIS Hub, which is hosted within the State Information Technology Department's infrastructure, is the foundation of GIS work at the state agency level. Although the GIS Hub serves state agencies as a first priority, other levels of government and citizens also benefit from the GIS Hub. Agencies can utilize the GIS Hub infrastructure for applications to be used internally or provided to their constituents, saving them from having to build their own duplicated infrastructure. With the GIS Hub, data is available through several standardized interfaces and in a seamless and common format. The GISTC members are the key to promote new and updated GIS Hub data which is important to existing, new, and planned GIS Hub applications.

Major accomplishments include:

- GIS has now been integrated into the 2008-2010 IT Professional Services Contract Pool. Previously, GIS was part of the Professional Services Contract Pool as a separate section.
- The Road Centerline Validation Study was commissioned by the GISTC to help validate and update the results of the previous Road Centerline Report. This validation study was done to help determine the most cost-effective approach for providing a statewide, seamless emergency response data set which includes road and address point data.
- A $25,000 grant was received from the U.S. Geological Survey to enhance distribution of data from the GIS Hub.
- An updated GIS Initiative Strategic Plan was released.
- Working with the Department of Emergency Services and a National Geospatial-Intelligence Agency contractor, the collection of critical infrastructure data (such as locations of hospitals, dams, fire stations) was completed.

Looking to the future, the GISTC will continue to grow the GIS Hub with additional data, functionality and applications while supporting its increased use.

GIS Initiative Governance

The GIS Technical Committee (GISTC) was established by Executive Order 1995-05 and re-affirmed by 2001-06 and is directed to coordinate and direct GIS activities within the state. The membership of the GISTC has grown through the addition of Associate Members, reflecting the expanding use of GIS within state government.

Seven agencies listed in the Executive Order:

- Department of Health
- Department of Transportation
- Game & Fish Department
- Geological Survey
- Information Technology Department
- Parks & Recreation Department
- State Water Commission

Associate Members:

- Land Department
- Oil & Gas Division
- Public Service Commission

Accomplishments

New Data

- **Critical infrastructure** – The State of North Dakota through its Department of Emergency Services (DES) worked with local officials and a contractor for the National Geospatial-Intelligence Agency (NGA) to collect critical infrastructure information throughout the state. Data being collected includes ambulance, fire stations, hospitals, clinics, and prisons.
- **Snowmobile trails** – snowmobile trails of North Dakota consist of marked and groomed trails. This data was obtained from the Parks and Recreation Department and Snowmobile North Dakota.

Updated Data

- **Aquifers** – The delineation of near-surface aquifers has been completed and final compilation is on-going. This project is managed by the State Water Commission. Used in natural resource planning by state agencies.
- **Hydrologic Unit boundaries** – The delineation of detailed hydrologic unit boundaries has been completed and final editing is nearing completion. It is anticipated that the data will be submitted for national certification by the end of September 2008. This project is managed by the Department of Health. The data will be used by state and federal agencies involved with natural resource planning and management.

- **Railroad data** – the GISTC funded a project to upgrade the railroad data, merging in multiple data sets from the NDDOT and the USDOT to create a single, updated data layer.
- **Other data** – includes roads, city boundaries, water districts, rivers and lakes, state and federal lands, and communications.

Updated GIS Hub Applications

- **Department of Health** – Enhanced the Facility Profiler with additional data layers
- **Department of Transportation** – Added new functionality to the Road Construction, Transportation Information, and other applications.
- **Department of Agriculture** – Enhanced the Weed Mapper application with additional data layers.
- **Tax Department** – Updated the functionality and updated the data used by the Sales Tax application.

GIS Professional Services Contract Pool

- Effective July 1, 2008, three categories of GIS professional services were integrated into the North Dakota State Term Contract 095.
- State and local government agencies may use a structured work order request process to obtain GIS professional services through this contract.
- The GIS Professional Services Contract Pool has been used several times since its implementation in 2006 and greatly eases the contracting process for agencies.

Training and Education

- **2007 Users Conference** – Had record attendance, presentations, and workshops. The theme was "Treasure on the Plains - Sharing a Wealth of Knowledge." Attendees were from state agencies, local government, the private sector including utilities, tribal, and federal agencies. The keynote presentation was provided by Shelby Johnson, the State Geographic Information Coordinator for Arkansas.
- **Metadata Training Workshops** – Held in conjunction with South Dakota, workshops detailing the importance and use of descriptive information for GIS data were held in Fargo and Pierre.
- **Coordinated GIS training** – The GISTC brings in an instructor to Bismarck to teach a 2 to 5-day course. This style of training has saved state agencies about $66,000 in training costs alone since their inception in 2002. Demand for this type of training has slowed down in 2007 but these courses will continue to be organized as needed.

Other Activities

- North Dakota does not have a seamless, statewide emergency services dataset which is critical for use in emergency services and daily state and local government activities. A "Road Centerline Study" was commissioned by the GISTC in late 2006 to determine the most feasible and cost-effective approach and an estimate of cost to meet the goal of

developing and maintaining a statewide road centerline dataset using the best available data. That study was further refined in the 2007 "Validation Study," also commissioned by the GISTC. The North Dakota 9-1-1 Association's GIS Committee, the Department of Emergency Services, and the GISTC are currently working together to develop the most cost-effective approach for providing a statewide, seamless emergency response data set. This data would include road centerlines (lines and associated data depicting the location of roads) and address points (points and associated data depicting the locations of homes and businesses). More information can be found at http://www.nd.gov/gis/news/roadcenterline.html .

- The GISTC is continuing to work with ITD to develop a new storage tier that will be better suited for storing large datasets. Once the new storage tier is in place, the GISTC will place the appropriate data sets onto the corresponding new and existing storage tiers. Each tier corresponds to a different storage rate and associated level of service.
- The GISTC is working with the U.S. Geological Survey to complete statewide digital elevation model data. The U.S. Geological Survey will be funding half of this work. Elevation data is used as base map data to display elevation information such as contours and shaded relief, and is used to develop additional data sets such as aerial photography.
- HB1303 relating to property tax assessment on agriculture lands is driving the need to develop parcels in many North Dakota counties. In the future, this data may be used to create a statewide land parcel dataset. A statewide parcel layer can be used in many ways including real estate transactions, oil & gas exploration, 9-1-1, emergency management, and taxation.
- The GISTC and the State Mapping Advisory Committee (SMAC) will continue working to identify data needs and priorities. The SMAC meets on an annual basis. The GISTC meets monthly and has an annual meeting that includes the executive membership and all other interested persons.
- Western counties were contacted by a contractor working with the Wildland Fire Project. The contractor will compile parcel data to be used by the U.S. Forest Service and other fire fighting agencies for planning purposes.
- The Local Update of Census Addresses (LUCA) program is administered by the U.S. Census Bureau that allows state, local, and tribal governments an opportunity to review and update the Census Bureau's address list used in the Census. Although the address information cannot be used by our state because of Title 13 of the U.S. Code, the state benefits from participation to help ensure an accurate census. Thirty-one counties, 33 townships, 79 cities, and one reservation are participating.

Challenges

Data

- **Emergency Services Datasets** – This data consists of road centerlines and address points. There are a number of challenges that include adequate funding for the collection of the data, how to best maintain the data, and equalization between counties with existing data and those without. The Department of Emergency Services will include the development of this critical dataset in their 2009-2011 budget request.

- **Color aerial photography** – Since 2003 North Dakota has been fortunate to have access to this data from the U.S. Department of Agriculture, Farm Service Agency. Beginning in 2007 and due to federal budget cuts, our state will no longer have this important and widely-used data. There is a strong possibility that we will have only a portion of our state flown in 2009. Due to Federal budget constraints, after 2009 it is uncertain when North Dakota will be flown again.

Resources

- **Developer resources** – GIS application development and assistance will be provided by the Information Technology Department software development group as much as possible. Where there is a shortage of local developers, agencies will use GIS categories within the IT Professional Services Contract Pool.
- **Integration of GIS systems** – Several state agencies are active developers of GIS applications and systems that meet their internal technical and business requirements. The GISTC will continue to be challenged to work hard to meet their needs of access and use of the GIS Hub.